

BEFORE THE
Federal Communications Commission
WASHINGTON, DC 20554

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FEDERAL COMMUNICATIONS COMMISSION
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In the Matter of

Amendment of Parts 2 and 25 to Implement the Global)
Mobile Personal Communications by Satellite (GMPCS))
Memorandum of Understanding and Agreements)

IB Docket No. 99-67

Petition of the National Telecommunications and Information)
Administration to Amend Part 25 of the Commission's Rules)
to Establish Emissions Limits for Mobile and Portable Earth)
Stations Operating in the 1610-1660.5 MHz Band)

RM No. 9165

**JOINT COMMENTS OF L/Q LICENSEE, INC.,
GLOBALSTAR, L.P. AND
AIRTOUCH SATELLITE SERVICES U.S., INC.**

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SUMMARY

In its *Notice of Proposed Rulemaking*, the Commission proposes to amend its rules to facilitate the global transport of portable telecommunications terminals used in connection with satellite systems providing global data, voice, Internet and other broadband services. Generally, the Commission intends these proposals to implement the international GMPCS Memorandum of Understanding which has been signed by the United States and over 120 additional parties since February 1997. To that end, the Commission sets forth a number of proposed rule changes intended to facilitate the deployment and free circulation of fixed and mobile satellite service terminals and equipment sold for use in, or transported into, the United States for use with global satellite systems.

Globalstar, L/Q Licensee, and AirTouch support the Commission's efforts in this regard. The GMPCS-MOU is intended to promote the free circulation of telecommunications equipment by removing impediments to global roaming of GMPCS terminals and ubiquitous service. Thus, the prompt and effective implementation of the GMPCS-MOU will serve the public interest by fostering the rapid development and deployment of the important new global voice, data, and broadband satellite services such as "Big LEO" mobile satellite service networks.

Globalstar, *et al.*, therefore, urge the Commission to craft carefully its licensing and certification procedures to ensure that they facilitate the important goals of global roaming of GMPCS terminals and ubiquitous service availability. The Commission should require all GMPCS terminals sold in the United States to be certified under Commission equipment authorization procedures. Further, all terminals bearing the International Telecommunications Union mark associated with the GMPCS-MOU should be permitted to enter the U.S. without being categorized as either "for domestic use" or "for transit only." In addition, the technical review of GMPCS terminals should occur in the certification process, not during licensing, and licensing should not be a prerequisite for obtaining terminal certification. There is no need for separate licensing review of the terminals.

Globalstar, *et al.*, also urge the Commission to adopt the phased out-of-band emission limits proposed by National Telecommunications and Information Administration for GMPCS terminals. The time-phased approach meshes with the scheduled implementation of global navigational satellite systems; protects these systems at the limits sought by aviation interests; and promotes the establishment of commercial mobile satellite service. Adoption of more stringent standards would not serve the public interest. The Commission should adopt technical rules that accommodate the out-of-band emissions standard.

Finally, the Commission should not at this time mandate emergency service obligations upon GMPCS service providers.

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L/Q Licensee, Inc., Globalstar, L.P.¹ and AirTouch Satellite Services U.S., Inc.² (collectively "Globalstar") hereby file these comments in the above-captioned proceeding. As discussed below, Globalstar urges the Commission to craft carefully its licensing and certification procedures to ensure that they facilitate the Commission's goals of global roaming of Global

¹ Globalstar, L.P. ("Globalstar") is the entity formed to obtain investment in and coordinate international service for the Globalstar MSS system. Globalstar owns and operates the global satellite business, and holds the right to offer space segment capacity. The Globalstar satellite system authorization is held by L/Q Licensee, Inc. ("LQL"). See *Loral/QUALCOMM Partnership, L.P.*, 10 FCC Rcd. 2333 (Int'l. Bur. 1995), *affirmed*, 11 FCC Rcd. 18502 (1996).

² AirTouch Satellite Services U.S., Inc. ("AirTouch") a wholly-owned subsidiary of AirTouch Communications, Inc., will provide LEO mobile satellite services through Globalstar in various countries, including the United States. To that end, on July 10, 1997, AirTouch Satellite filed an application for blanket license to construct and operate up to 500,000 hand held, vehicular, and fixed earth terminals. See *AirTouch Satellite Services U.S., Inc.*, Application for Blanket Authorization to Construct and Operate up to 500,000 Mobile Satellite Earth Terminals Through the Globalstar Mobile Satellite System, File No. 1367-DES-P/L-97, as amended.

Mobile Personal Communications by Satellite³ (“GMPCS”) terminals and ubiquitous availability of mobile satellite service (“MSS”). To that end, the Commission should require all GMPCS terminals sold in the United States to be certified under Commission equipment authorization procedures. Further, all terminals bearing the International Telecommunications Union (“ITU”) mark associated with the GMPCS Memorandum of Understanding should be permitted to enter the U.S. without being categorized as either “for domestic use” or “for transit only.” In addition, the technical review of GMPCS terminals should occur in the certification process, not during licensing, and licensing should not be a prerequisite for obtaining terminal certification. The objective of this proceeding must be to dismantle barriers to entry and to encourage the manufacturing and distribution of MSS equipment without restriction unless there is a high probability of harmful interference.

Globalstar also urges the Commission to adopt the phased out-of-band emission limits proposed by National Telecommunications and Information Administration (“NTIA”) for GMPCS terminals. The time-phased approach should be adopted because it: meshes with the scheduled implementation of Global Navigational Satellite Systems (“GNSS”); protects GNSS at the limits sought by aviation interests; and promotes the establishment of commercial MSS. Adoption of more stringent standards would not serve the public interest in development of GMPCS systems. Accordingly, the Commission should adopt technical rules that accommodate the out-of-band emissions standard.

³ GMPCS is “any satellite system, (i.e., fixed or mobile, broadband or narrow-band, global or regional, geostationary or non-geostationary, existing or planned) providing telecommunication services directly to end users from a constellation of satellites.” *See Notice* at n.1.

Finally, the Commission should not at this time mandate emergency service obligations upon GMPCS service providers.

I. BACKGROUND

The Commission proposes to amend its rules to facilitate the global transport of portable telecommunications terminals used in connection with satellite systems providing global data, voice, Internet and other broadband services.⁴ Generally, the Commission intends these proposals to implement the international GMPCS Memorandum of Understanding ("GMPCS-MOU") which has been signed by the United States and over 120 additional parties since February 1997.⁵ The GMPCS-MOU serves as the basis for voluntary "Arrangements" and implementation procedures for regulators, system operators, manufacturers and service providers that are designed to promote global roaming of GMPCS terminals and ubiquitous service.

In the *Notice*, the Commission sets forth a number of proposed rule changes intended to facilitate the deployment and free circulation of fixed and mobile satellite service terminals and equipment ("GMPCS terminals") sold for use in, or transported into, the United States for use with global satellite systems.⁶ Specifically, the Commission proposes to authorize manufactur-

⁴ *Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite ("GMPCS") Memorandum of Understanding and Arrangements; Petition of the National Telecommunications and Information Administration to Amend Part 25 of the Commission's Rules to Establish Emissions Limits for Mobile and Portable Earth Stations Operating in the 1610-1660.5 MHz Band*, IB Docket No. 99-67, RM No. 9165, *Notice of Proposed Rulemaking*, FCC 99-37 (rel. March 5, 1999) ("Notice").

⁵ The GMPCS-MOU is a product of the 1996 World Telecommunications Policy Forum ("WTPF-96"). See *id.* at n.2, citing *Final Report of the World Telecommunications Policy Forum*, Geneva, 1996 (ITU 1997). A current list of signatories is maintained on the ITU Internet site, WWW.ITU.INT/GMPCS/GMPCS-MOU/FINAL/SIGN/INDEX.HTM.

⁶ *Id.* at ¶ 3.

ers to secure certification for GMPCS terminals through its existing equipment certification process.⁷ GMPCS terminals would be required to meet all applicable Commission technical rules in order to receive equipment certification. Once certified, GMPCS terminals would be marked with an FCC identifier and would be eligible for registration at the ITU and to receive the new, international “GMPCS-MOU ITU REGISTRY” mark (the “ITU mark”).⁸

The Commission tentatively concludes that certification will be required for all GMPCS terminals sold or leased for use in the United States.⁹ In addition, terminals sold outside the United States to be used in the United States or transported through the United States as an “inoperable personal effect” would have to bear the ITU mark.¹⁰ Further, GMPCS terminals to be used in the United States or transported from abroad for use in the United States would require authorization to communicate with a U.S.-licensed GMPCS service provider before being operated.¹¹ The Commission proposes to hold the licensed service provider associated with a GMPCS system responsible for any interference resulting from unauthorized use of its system. The Commission also proposes a set of procedures designed to enable the U.S. Customs Service to enforce the rules with minimum additional burden at points-of-entry throughout the country.

As to the technical requirements for Commission certification, the Commission proposes to adopt the NTIA time-phased out-of-band emissions limits for GMPCS terminals transmitting in the band 1610-1660.5 MHz, in order to protect reception of aeronautical radionavigation

⁷ *Id.*

⁸ *Id.* at ¶¶ 3, 22.

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.* at ¶ 4.

signals in the 1559-1605 MHz band.¹² Finally, the Commission also seeks comment on whether GMPCS terminals should be required to provide enhanced 9-1-1 capability for distress, disaster and safety communications.¹³

II. THE COMMISSION SHOULD STREAMLINE THE CERTIFICATION AND LICENSING PROCESSES

Globalstar supports the Commission's efforts to implement the GMPCS-MOU and the Arrangements. As the Commission recognizes, the GMPCS-MOU and the Arrangements are designed to promote the free circulation of telecommunications equipment by removing impediments to global roaming of GMPCS terminals and ubiquitous service.¹⁴ The Commission has long recognized that MSS systems will offer "an almost limitless number of services" and will "help meet the demand for a seamless nationwide and eventually global communications system that is available to all."¹⁵ There can be no doubt that rapid deployment of MSS services will serve the public interest. Consequently, Globalstar believes that prompt and effective implementation of the GMPCS-MOU and the Arrangements will foster the rapid development and deployment of the important new global voice, data, and broadband satellite services such as "Big LEO" MSS systems.

Globalstar submits that unnecessary regulatory procedures may become impediments to global roaming of GMPCS terminals and ubiquitous service. Consequently, the Commission should ensure that its efforts do not create undue regulatory burdens to MSS deployment. In that

¹² *Id.* at ¶ 5.

¹³ *Id.*

¹⁴ *Notice* at ¶ 1.

¹⁵ *Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5 MHz/2483.5-2500 MHz Bands*, 9 FCC Rcd. 5936, 5940 ¶ 3 (1994) ("Big LEO Order").

regard, Globalstar is concerned that a number of the Commission's proposals in the *Notice* are unduly burdensome and may hamper rather than foster global roaming of GMPCS terminals and frustrate the important purpose of the *Notice*. Globalstar therefore urges the Commission to streamline its proposed GMPCS certification and licensing procedures as discussed below.

A. The Commission Should Not Establish Cumbersome, Multiple Categories of GMPCS Terminals

In the *Notice*, the Commission proposes creating separate categories of GMPCS terminals, each subject to slightly different requirements. Specifically, the Commission proposes that GMPCS terminals sold or leased, or imported for sale or lease in the United States and intended to be used with an authorized GMPCS service be required to be certified under Commission procedures.¹⁶ This requirement, however, would *not* apply to *all* mobile terminals to be sold in the U.S. Instead, the Commission proposes to exempt mobile terminals permanently installed on ships, boats or planes.¹⁷

Further, the Commission proposes to require terminals brought into the United States — as opposed to sold in the U.S. — to bear the ITU mark.¹⁸ Unmarked terminals would be prohibited from entering the United States.¹⁹ In addition, the Commission proposes to create a list of terminals bearing the ITU mark that have also been approved by an operator for use with an authorized system in the U.S.²⁰ Terminals appearing on this “approved for domestic use” list would be authorized for operation in the U.S. Terminals that have *not* been approved by an

¹⁶ *Notice* at ¶ 24.

¹⁷ *Id.*

¹⁸ *Id.* at ¶¶ 25, 26, 27.

¹⁹ *Id.*

²⁰ *Id.* at ¶ 26.

operator for use with an authorized system in the U.S. would appear on a separate “approved for transit” list.²¹ These terminals would not be authorized to operate in the U.S.

Finally, the Commission requested comment on how to develop regulations to govern dual-mode cellular/GMPCS terminals where the terrestrial component cannot be certified to a standard or utilize frequencies used in the U.S.²²

The Commission’s proposed multiple categories of GMPCS terminals are unnecessary and should be eliminated. Globalstar agrees that all mobile GMPCS terminals sold in the U.S. should be required to be certified through the equipment authorization procedure. As the Commission recognizes, the FCC identifier received for certified equipment will promote global roaming by assuring foreign authorities that the terminals are “safe and should be allowed to transit across borders without delay and be used in their respective territories.”²³

The Commission, however, should not exempt “permanently installed” mobile terminals to be sold in the U.S. from this certification requirement. The *Notice* offers no justification for such disparate treatment. Such an exemption is an unnecessary complexity. Presumably, the Commission would require uncertified equipment to be reviewed for technical compliance in the blanket authorization process. It makes no sense to have two different procedures to accomplish the same purpose. Moreover, customers should be allowed to decide for themselves whether to “install” their GMPCS terminals. Absent linkage between permanently installed phones and compliance with the Commission’s rules, which has not been shown here, no exceptional

²¹ *Id.* at ¶ 27.

²² *Notice* at ¶ 43. While there are systems in the U.S. that use GSM, U.S. spectrum allocations for such services are not aligned with allocations in other regions and countries.

²³ *Id.* at ¶ 21.

treatment is warranted. Globalstar, therefore, urges the Commission to require *all* GMPCS terminals sold in the United States for domestic use to be certified without exception. Such a rule would be much simpler both from an administration and compliance perspective and there is no justification for the proposed disparate treatment.

Further, Globalstar agrees with the Commission's proposal to require terminals entering the U.S. to carry the ITU mark. The ITU mark on a terminal would signify that the terminal was certified by at least one administration or competent authority and that the specifications of that terminal were registered in the international ITU database.²⁴ As the Commission recognizes, both attributes of the ITU mark would help assure that the marked terminals would not cause harmful interference.²⁵

Globalstar, however, submits that the Commission should not go further to distinguish between terminals that are permitted in the U.S. for use, for transit, or dual-mode terminals. Creating distinct regulatory requirements for each of these narrow sub-categories of ITU-marked terminals would create unnecessary complexity and could impede the free movement of GMPCS terminals across international borders.²⁶ Stated simply, if a terminal carries an ITU mark, it should be permitted into the U.S. without regard to whether it is brought into the country for use or transit or is a dual-mode terminal.

This simple, clear rule will not undermine any significant protection to the consumer or domestic wireless networks. The Commission has already stated its intention to hold U.S.-

²⁴ *Id.* at ¶ 25.

²⁵ *Id.*

²⁶ The Commission should not assume that busy Customs officers would even attempt to embrace such distinctions.

licensed GMPCS service providers responsible for all transmissions in the U.S. that emanate from their networks.²⁷ Holding satellite service operators responsible for blocking service to GMPCS terminals that are not approved by an operator for use in the U.S. is sufficient, without creating multiple lists of approved and not approved terminals. For example, AirTouch will utilize software that requires specific terminal information before a caller is permitted to access the satellite network. This permits AirTouch to block or deny service to GMPCS terminals that are not properly authorized. Such technology is essential for protecting carriers and consumers against fraud. Further, the Commission retains enforcement authority over MSS licensees, should harmful interference actually emanate from their networks. Dual-mode terminals do not require any different treatment. Insofar as the dual-mode terminals are constructed to operate using frequencies or standards not utilized in the U.S., they are inoperable in the cellular mode in the U.S.

Because satellite service licensees will be able to block or deny service to unauthorized terminals, the Commission need not adopt the complex regulatory scheme proposed in the *Notice*. Globalstar agrees with the Commission's proposal to adopt new Section 2.1204(a)(9) of its regulations to permit all GMPCS equipment bearing the ITU mark to enter the country.²⁸

B. Technical Review of Terminals Should Occur During Certification Rather Than Licensing

In the *Notice*, the Commission proposes a two stage process for licensing and certifying GMPCS terminals. The Commission currently licenses transmitting facilities and establishes technical regulations, consistent with the public interest, governing the interference potential of

²⁷ *Id.*

²⁸ *Notice*, App. A.

equipment that emits radio frequency energy.²⁹ The Commission licenses multiple, identical transmitters used in conjunction with an authorized mobile or fixed satellite service under a single “blanket” license rather than multiple licenses for individual transmitters.³⁰ The Commission proposes to retain this licensing process.³¹

In addition to this licensing process, the Commission proposes to permit GMPCS terminals to be certified under its equipment authorization program.³² Under this program, radio transmitters and other electronic devices, before they are sold for use in the United States, are certified as meeting the standards applicable to the specific radio services for which they are designed and demonstrate compliance with environmental radiation hazard limits.³³ The Commission proposes to permit equipment manufacturers to obtain certification for GMPCS mobile earth terminals through this certification process.

²⁹ 47 U.S.C. § 302(a).

³⁰ See 47 C.F.R. §§ 25.115(d), 25.135, 25.136, and 25.213.

³¹ Notice at ¶ 28.

³² *Id.* at ¶ 21.

³³ Recently, as part of its 1998 biennial review, the Commission undertook two streamlining measures that simplified its equipment certification processes. The first deregulated the equipment certification requirements for certain types of equipment and provided for electronic filing of applications for equipment certification. See *Amendment of Parts 2, 15, 18 and Other Parts of the Commission's Rules to Simplify and Streamline the Equipment Authorization Process for Radio Frequency Equipment*, 13 FCC Rcd. 11415 (1998). Second, the Commission adopted rules permitting private entities in the United States and designated entities in other countries to certify that equipment intended for use within the United States complies with Commission requirements. See *Amendment of Parts 2, 15, 18 and Other Parts of the Commission's Rules to Further Streamline the Equipment Authorization Process for Radio Frequency Equipment, Modify the Equipment Authorization Process for Telephone Terminal Equipment, Implement Mutual Recognition Agreements, and Begin Implementation of the Global Mobile Personal Communications by Satellite (GMPCS) Arrangements*, 14 Com. Reg. 627 (1998).

Globalstar supports the Commission's decision to keep separate the licensing and certification procedures for GMPCS terminals.³⁴ But Globalstar urges the Commission to streamline further these procedures by discontinuing the review of earth station technical requirements in the blanket licensing process. Instead, technical requirements should be reviewed in the equipment certification process, leaving only the legal requirements in the licensing process. There is no need for the Commission to review detailed technical data as part of the licensing process and such review is redundant, administratively burdensome, time-consuming and unnecessary. This is particularly significant in light of the recommendation above that the Commission not exempt any terminals from the certification process.

As the Commission recognizes, the technical information currently filed with requests for certification (*i.e.*, frequency range and tolerance, power output, and emissions data) is identical to the technical information filed with applications for blanket licenses.³⁵ There is no need for the Commission to review the same information in *both* the licensing and certification phases.

Further, deferring technical review to the certification process would be sensible and efficient. The legal data required for blanket licensing are simply not relevant to the technical analysis required for equipment certification. Indeed, different entities, the manufacturer and service provider, are likely to hold equipment certifications and the blanket licenses. Thus, each process will be made more efficient because the required filings will be limited to only the data relevant to the determinations to be made by the Commission.

³⁴ Notice at ¶ 31.

³⁵ *Id.* citing FCC Forms 731 and 312.

C. Terminals Should not be Required to be Associated with an Authorized Service to be Certified

Under the Commission's proposal, GMPCS terminals may be certified only under a blanket license awarded to a service provider to provide GMPCS service in the U.S.³⁶ In other words, the Commission envisions a sequential process in which terminals must first be authorized under a blanket license before they can be certified. Indeed, the Commission proposes to dismiss all applications for certification of equipment not affiliated with an authorized service as premature.³⁷

Globalstar opposes this proposal as an unnecessary regulatory hurdle. There is no reasonable justification for requiring certification to be premised upon a "blanket license." As discussed above, the licensing and certification should be distinct processes dealing with separate issues (*i.e.*, licensing should deal with legal issues while certification deals with technical issues) and resolution of one process is not dependent upon the other. Further, the "blanket licensing" process can be protracted; requiring certification to wait on licensing could unnecessarily extend the process. Certified handsets cannot be used unless an authorized service provider authenticates them and provides a communication channel. As discussed above, satellite carriers have both the incentive and the capability to block or deny service to unauthorized terminals. Thus, additional regulatory procedures would impose a significant burden with no concomitant public benefit.

The proposed requirement that GMPCS terminals be associated with a particular authorized service also conflicts with established regulatory practice. Cellular and PCS

³⁶ *Id.* at ¶ 30.

³⁷ *Id.*

handsets, for example, do not have to be associated with specific authorized service providers.³⁸ Indeed, cellular and PCS applicants do not have to list the equipment manufacturers they intend to use in their license application or update their licenses to reflect any change in manufacturers.

Globalstar submits that the Commission should treat GMPCS terminals as it does cellular handsets. Terminals should not have to be associated with a specific authorized service before being certified. Further, “blanket” license applications should not be required to list specific terminal manufacturers in their license applications. Simply put, if a GMPCS terminal has been certified, or bears the ITU mark, or any other recognized certification, there should be no need for the terminal to be specifically listed in a license application or authorization.³⁹

III. THE PROPOSED OUT-OF-BAND EMISSIONS STANDARDS ARE IN THE PUBLIC INTEREST

The Commission has proposed specific levels for out-of-band emissions into the 1559-1605 MHz band from MSS METs operating at 1610-1660.5 MHz for the protection of the United States Global Positioning System (“GPS”) and the Russian Global Navigation Satellite System (“GLONASS”). Globalstar supports the Commission’s proposed limits and the time-phased approach for implementation of the most stringent levels of protection; these rules must be adopted as quickly as possible to facilitate the rapid establishment of commercial MSS services in the United States and abroad.⁴⁰

³⁸ Cf. 47 C.F.R. §§ 22.3, 22.927.

³⁹ See *supra* note 32.

⁴⁰ The engineering information regarding out-of-band emissions presented in these comments is supported by the Engineering Certificate of David E. Weinreich, Spectrum Manager, Globalstar, L.P.

The debate over the appropriate out-of-band emissions limits for METs operating in the 1610-1626.5 MHz band has extended nearly a decade, and has been engaged in several different proceedings before several different fora. For the first time, the proposal in the *Notice* resolves two of the main points of controversy: the specific levels of protection and the time frame in which MSS operators must provide such protection. With respect to both timing and level of protection, the Commission's proposals satisfy the avowed requirements of the aviation industry without seriously compromising the MSS industry's ability to offer products and services that consumers will buy. Equally important, they are consistent with previously-adopted foreign standards. For these reasons, the proposals in the *Notice* are in the public interest and should be adopted.

Adoption of these limits immediately is critical to the successful implementation of commercial MSS services in the 1610-1626.5 MHz band. Big LEO operators have for years been forced to grapple in the United States with the issue of how to build handsets without having a standard for the level of protection required for GNSS. This uncertainty was not merely academic: the level of protection affects consumer issues such as size and weight of the handset, and the uncertainty threatens to delay development of the MSS industry, and to discourage investors in these multi-billion dollar systems. While these limits have remained the subject of largely unproductive debate in the U.S., the rest of the world has begun adopting standards which satisfy the requirements of aviation and MSS.

A. The Time-Phased Approach Meshes With the Scheduled Implementation of GNSS

Under the Commission's proposal to protect GNSS operating in the 1559-1605 MHz band:

On or after January 1, 2002, all METs placed into service for operation in the 1610-1626.5 MHz band or 1626.5-1660.5 MHz band would be required to limit out-of-band emissions in the 1559-1605 MHz band to -70 dBW/MHz for broadband signals and -80 dBW for discrete emissions less than 700 Hz bandwidth.

Before January 1, 2002, all MSS METs placed into service for operation in the 1610-1660.5 MHz would be required to suppress EIRP density to -70 dBW/MHz in the 1559-1580.42 MHz band for broadband signals and to -80 dBW in the 1559-1585.42 MHz band for narrowband signals. Big LEO terminals operating in the 1610-1626.5 MHz band would be required to meet a level of -64 dBW/MHz for broadband signals in the 1580.42-1605 MHz band, and -74 dBW for narrowband signals in the 1585.42-1605 MHz band. Terminals operating in the 1626.5-1660.5 MHz band placed into service before January 1, 2002, would have no new emissions limit for broadband signals in the 1580.42-1605 MHz band or for narrowband signals in the 1585.42-1605 MHz band.⁴¹

Between January 1, 2002 and January 1, 2005, METs placed into service before January 1, 2002, would not be required to be reprogrammed or replaced to meet the limits applicable to terminals placed into service on or after January 1, 2002.

On or after January 1, 2005, all METs placed into service at any date would be required to meet the most stringent limits of -70 dBW/MHz for broadband signals and -80 dBW for narrowband signals.

⁴¹ AMSC Subsidiary Corporation, U.S. licensee of the 1545-1559/1646.5-1660.5 MHz band, is obligated to protect GPS receivers pursuant to a "Memorandum of Understanding" between the Commission, NTIA and FAA. *See AMSC Subsidiary Corp.*, 10 FCC Rcd 10458, ¶ 28 (Int'l Bur. 1995); *AMSC Subsidiary Corp.*, 10 FCC Rcd 9507, ¶ 11 (Int'l Bur. 1995).

This proposal is consistent with the time frame for the implementation of GNSS systems. GPS now operates under the Radio-Navigation Satellite Service (“RNSS”) allocation in the 1559-1610 MHz band, specifically at 1565.2-1585.6 MHz.⁴² GPS transmits a signal centered at 1575.42 MHz. Under the Commission’s Rules for 1.6/2.4 GHz systems (47 C.F.R. § 25.213(b)), GPS must be protected at the limits of –70 dBW/MHz for broadband signals averaged over any 20 ms period and –80 dBW for discrete spurious emissions with bandwidth less than 600 Hz in the band 1574.397-1576.443 MHz.

GLONASS was initially configured to operate the carrier frequencies of its civilian code up to about 1615.5 MHz. However, in an effort to achieve greater compatibility with the Radio Astronomy Service at 1610.6-1613.8 and MSS Above 1 GHz at 1610-1626.5 MHz, the Russian Administration has agreed to reconfigure to GLONASS to operate only below 1605 MHz after 2005 for signals available for international civil use.⁴³ Therefore, the Commission’s proposal ensures that GLONASS would receive the most stringent level of protection at the time when it, like GPS, becomes part of GNSS.

Given the operational characteristics of GPS and GLONASS as part of GNSS, neither system would be impaired by the adoption of the time-phased approach. On the other hand, the time-phased approach would provide MSS operators additional time to achieve suppression of out-of-band emissions below 1610 MHz. Although most Globalstar METs will meet the most stringent limits when initially placed into service, some special use terminals may not meet those standards at the beginning of commercial operation. Since achieving this level of protection for

⁴² See *Big LEO Order*, 9 FCC Rcd at 5983.

⁴³ See RTCA, Inc., “Assessment of Radio Frequency Interference Relevant to GNSS,” at F-1 (Jan. 27, 1997) (“*RTCA Report*”).

all METs requires further technical work, the extra time is welcome, and the rules should be adopted as proposed.

B. The Proposed Limits Protect GNSS at the Level Sought by Aviation Interests

The Commission's rulemaking for GMPCS is the latest in a series of proceedings in which out-of-band protection requirements for GNSS systems have been considered over the past seven years.

In 1994, the Commission adopted rules for MSS Above 1 GHz systems, and proposed that these rules incorporate protection standards for GPS and GLONASS.⁴⁴ For GPS, the Commission ultimately required that METs limit the EIRP of out-of-band emissions to -70 dBW/MHz for wideband signals and -80 dBW for signals less than 600 Hz in the 1574.397-1576.443 MHz band.⁴⁵ For GLONASS, aviation interests recommended the -70 dBW/MHz and -80 dBW limits, but the analysis presented by the MSS industry indicated that such stringent limits were unnecessary to prevent harmful interference.⁴⁶ In the absence of a consensus, the Commission deferred consideration of the out-of-band emissions limits, and referred the matter

⁴⁴ See *Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands*, 9 FCC Rcd 1094, ¶¶ 53-59 (1994).

⁴⁵ See *Big LEO Order*, 9 FCC Rcd at 5987-88 (codified at 47 C.F.R. § 25.213(b)). This standard was recommended by the MSS Above 1 GHz Negotiated Rulemaking Committee ("NRC"). See *Report of the MSS Above 1 GHz Negotiated Rulemaking Committee*, § 5.2.2.7 (Apr. 6, 1993) ("NRC Report"). The NRC was unable to agree on protection requirements for GLONASS.

⁴⁶ See *Big LEO Order*, 9 FCC Rcd at 5988-89.

to the RTCA, Inc., a non-profit organization which develops consensus-based recommendations for aviation operational standards.⁴⁷

Subsequently, Special Committee 159 of RTCA, composed of representatives of both aviation and MSS interests, as well as other interested parties, reviewed the potential for interference into GPS and GLONASS from MSS handsets, and considered appropriate out-of-band emissions restrictions.⁴⁸ The participants in SC-159 agreed on out-of-band emissions limits for GPS, but were not able to reach agreement on protection requirements for GLONASS receivers. For GPS, RTCA participants agreed that there would be “no threat from MSS operations to GPS . . . in any phase of flight” as long as MSS METs met the limits of –70 dBW/MHz for broadband signals and –80 dBW for narrowband signals less than 700 Hz.⁴⁹ The aviation interests once again insisted that the same limits adopted for GPS were necessary for GLONASS up to 1605 MHz.⁵⁰ The MSS interests recommended the limits of –54 dBW/MHz for broadband and –64 dBW for narrowband signals in the GLONASS band.⁵¹

Two years of additional debate in the U.S., in ITU Working Party 8D, and in European Telecommunications Standards Institute (“ETSI”), led to the NTIA’s proposing a time-phased approach for protection of GLONASS which would give MSS operators a reasonable amount of time to develop hardware or software capable of achieving the –70 dBW/MHz and –80 dBW

⁴⁷ See *id.* at 5988-90; see also *Memorandum of Understanding Between the Federal Communications Commission, National Telecommunications and Information Administration, and Federal Aviation Administration Addressing Out-of-Band Emission Requirements for the Mobile-Satellite Services*, 1994 FCC LEXIS 5774 (Nov. 18, 1994).

⁴⁸ See *RTCA Report*, *supra*.

⁴⁹ See *id.* at 46.

⁵⁰ See *id.*, App. F.

⁵¹ See *id.*, App. E.

levels. This approach was presented to the FCC in a letter from NTIA in the fall of 1997, treated as a petition for rulemaking, and has been incorporated into this proceeding.⁵²

In all these proceedings, aviation interests have insisted that MSS Above 1 GHz systems must provide protection for GNSS systems at the levels now proposed in the *Notice* for the dates on or after January 1, 2002. In the past, MSS interests have resisted implementation of these stringent limits in the 1597-1605 MHz band as both unnecessary and unachievable. Nevertheless, Globalstar directed its user terminal suppliers to try to meet these limits without rendering the terminals commercially unmarketable. As it became apparent in late 1997 that ETSI would adopt similar limits, Globalstar's suppliers redoubled their efforts and, within the past few months, achieved the limits of -70 dBW/MHz for broadband and -80 dBW for narrowband signals in a commercially viable product.⁵³

C. The Proposed Standards Promote the Prompt Deployment of Commercial MSS Systems

Almost five years ago, the Commission adopted rules and policies to inaugurate the first competitive MSS service in the world.⁵⁴ At that time, the Commission noted that Big LEO systems were intended:

to provide not only a variety of new services to users in the United States, but to provide integrated communications services to all parts of the world, including those that are now grossly under-

⁵² See Letter from Richard D. Parlow, NTIA, to Ms. Regina M. Keeney, International Bureau, FCC (Sept. 18, 1997).

⁵³ QUALCOMM Incorporated, the principal contractor for Globalstar's ground segment, has recently received European type approval for three Globalstar phone models at the broadband out-of-band emission limits proposed in this proceeding. As stated previously, Globalstar continues to work to make certain special use terminals meet the -70 dBW/MHz standard.

⁵⁴ See *Big LEO Order*, 9 FCC Rcd at 5936.

served. . . . [Our decision] will create a new industry providing enormous economic benefit to the United States, and any other country that chooses to participate in the service.⁵⁵

The promise of this new competitive service is nearing fruition. Two Big LEO licensees have launched satellites; Iridium service has commenced, and Globalstar service should become available in Fall 1999. Further study or debate on out-of-band emissions standards for protection of GNSS will produce no new material facts, but will only cast a shadow over the industry as the decade-old vision of ubiquitous, reasonably-priced telecommunications is on the verge of being realized.

Manufacturers of GNSS receivers have long had the technical wherewithal to design and build GNSS receivers capable of the highest degree of reliability in safety-of-life applications. As long as the standards to which they must build remain fluid, however, GNSS receiver manufacturers have no incentive to design these types of state-of-the-art products. No manufacturer will produce a technically sophisticated product without some assurance that it will not prematurely become technically obsolete. As the aviation interests have pointed out, there are many technically and economically reasonable steps that receiver manufacturers can take to make the product more resistant.⁵⁶ By setting out-of-band emission limits the Commission will promote certainty as to what standards manufacturers should use in designing GNSS receivers. The Commission should use this proceeding to set standards that will encourage manufacturers to build more robust receivers.

⁵⁵ *Id.* at 5939.

⁵⁶ *See RTCA Report*, § 10.2; Johns Hopkins University Applied Physics Laboratory, “GPS Risk Assessment Study: Final Report,” § 5 (Jan. 1999). It must be emphasized that MSS out-of-band emissions are only one of many sources of potential interference, and some cause much more severe interference into GNSS receivers.

D. Adoption of More Stringent Standards Would Not Serve the Public Interest

In considering out-of-band emissions requirements for MSS METs in the 1610-1626.5 MHz band, the Commission must reject any suggestion that the standards be made more stringent. There are two reasons for this. First, more stringent standards would isolate the United States from the benefits of GMPCS by imposing requirements that the rest of the world finds unnecessary to protect safety-of-life applications. Second, after years of analysis, there have been no credible studies demonstrating that more stringent standards are necessary.

As to the first point, in the *Notice* (§ 59), the Commission recognizes that, as of December 1997, the European Community through ETSI adopted out-of-band emissions standards for satellite handsets operating in the 1610-1626.5 MHz band to protect elements of the GNSS.⁵⁷ The ETSI standards represent a consensus among the MSS and civil aviation community. Similarly, as the Commission notes (*Notice*, § 57-58), the ITU has adopted a recommendation (ITU-RM.1343) which mirrors the wideband emissions limits in the *Notice* for non-geostationary MSS systems operating in the 1-3 GHz range.

In this era of “globalization,” the Commission would be wise to seek U.S. standards compatible with those of the ITU and ETSI. Multiple, conflicting standards would have an unacceptably negative impact on the ability of satellite system METs to roam. Globalstar handsets manufactured for use in Europe must meet the ETSI and ITU standards. If there is a more stringent standard in effect in the United States, then these handsets may not meet a

⁵⁷ ETSI, “Satellite Personal Communications Networks (S-PCN); Mobile Earth Stations (MESs), including handheld earth stations, for S-PCN in the 1,6/2,4 GHz bands under the Mobile Satellite Service (MSS); Terminal essential requirements,” TBR 41 (Jan. 1998).

technical standard for roaming into the United States.⁵⁸ Thus, depending on the limits adopted, the Commission may preclude roaming of non-U.S. built METs. Such action could have a deleterious effect not only on Globalstar's business but also on competition among MSS providers. If only some MSS systems can offer roaming into the United States, then subscribers desiring certain types of services may favor those providers over others, even though service by the non-conforming system may be otherwise equal or better.

The Commission has itself noted that “[u]niformity among national technical standards for terminals used with global satellite systems is clearly desirable.” *Notice*, ¶ 57. The Commission has also previously noted that it will take regulatory actions necessary to ensure its MSS licensees can provide competitive service.⁵⁹ It should fulfill this policy here by not enacting more stringent protection requirements for GNSS for GMPCS terminals than those adopted by ETSI and the ITU.

Significantly, no party has demonstrated that more stringent standards are necessary to protect GNSS receivers. As the Commission observes (*Notice*, ¶ 77), some parties have suggested in other proceedings that the Commission should adopt more stringent protection requirements for *terrestrial* uses of GPS. But, six years ago, the NRC considered terrestrial uses of GPS and did not propose any different protection requirement for terrestrial uses.⁶⁰ Indeed,

⁵⁸ See 47 C.F.R. § 25.136(c). Some Globalstar handsets manufactured by QUALCOMM Incorporated have already received type approval pursuant to the ETSI standard and have been registered under the GMPCS MOU.

⁵⁹ See *Establishing Rules and Policies for the Use of Spectrum for Mobile Satellite Service in the Upper and Lower L-Band*, 11 FCC Rcd 11675, 11681 (1996) (“We can and should . . . take reasonable and appropriate steps to ensure that our licensees have a fair opportunity to compete”).

⁶⁰ *NRC Report*, § 3.3.7.2 (“the relative vehicle motion should bring the public safety vehicle
(continued...)”)

the technical performance requirements, associated with the alleged safety uses of GPS equipment on the ground have never been documented. For example, there is no standard for the nominal availability of GPS receivers on the ground, where they are subject to shadowing and blocking due to buildings, dense foliage, tunnels, and terrain. In contrast, any contact with an MSS MET is likely to be an isolated and transitory event.⁶¹ In the many years that GPS requirements have been debated, no credible, technically-based rationale for protection of terrestrial GPS uses in excess of the limits proposed by NTIA has surfaced. On the other hand, consideration of different or more stringent standards at this point in time to accommodate the terrestrial GPS interests would increase the cost of MSS handsets and delay the deployment of systems coming on-line. Terrestrial GPS manufacturers have had ample opportunity to present their position and have (in some cases) participated in these proceedings over the years. They have yet to present *any* evidence that their customers would be harmed by the aviation-supported standard, and thus there is no need for further Commission delay.

E. The Commission Should Adopt Technical Rules That Accommodate the Out-of-Band Emissions Standard

The Commission has sought comment on a number of technical questions related to the proposed out-of-band emissions standards. For each of these, Globalstar believes that the Commission should adopt a policy of promoting universal standards.

Delay in Implementation. The Commission has asked whether it should provide for delay in implementation of the final emissions standards up to 1605 MHz beyond January 1, 2005, in

(...continued)

within interference range only for a short time. This relative motion allows some improved reception through navigation solution averaging in the GPS receiver.”).

⁶¹ *Id.*

the event that GLONASS does not materialize as a segment of GNSS by that date. (*Notice*, ¶ 73)

There are, in fact, several technical and regulatory issues that may delay or prevent the use of GLONASS, as part of GNSS, for precision approach within the United States.⁶² But, the Commission should *not* provide for any delay in implementation; rather, the Commission should let the time phase-in take effect on schedule. At this point, there is no substantive debate on what standards should be adopted. And other administrations have adopted the –70 dBW/MHz broadband standard for implementation now. Certainty and finality are more important to many manufacturers and service providers than an open-ended prospect of future relief from the requirements.

Validation of Assumptions. The Commission notes that certain MSS licensees have questioned whether the assumptions underlying the NTIA standards are valid. Constellation Communications, Inc., objects to use of a broader bandwidth for protection of GPS than that currently specified for Big LEO systems (47 C.F.R. § 25.213(b)). Globalstar believes that the broader protection bandwidth has not been justified on technical grounds, and that a technical analysis may produce a protective bandwidth that is less than that proposed by the Commission. Nevertheless, Globalstar is willing to accept a broadband limit up to 1580.42 MHz and a narrow-band limit up to 1585.42 MHz to accommodate GPS. In any event, as the Commission notes (*Notice*, ¶ 67), it is unlikely that expansion of –70 dBW/MHz protection in the proposed GPS portion of the band below 1605 MHz will adversely affect development of MSS operations above 1610 MHz.⁶³

⁶² See *RTCA Report*, App. E, at Table E9-1.

⁶³ MCHI has argued that the Commission should not require any protection to GLONASS prior to January 1, 2005. (*Notice*, ¶¶ 68-70) Globalstar agrees with the Commission that
(continued...)

Compliance Testing for METs. Motorola has proposed that the Commission use a non-peak detector in measurements for compliance of TDMA METs, and that licensees be allowed to use resolution bandwidths of less than 1 MHz and to integrate the measurements when testing for compliance with wideband power-density limits. (*Notice*, ¶¶ 78-80) Globalstar supports Motorola's proposals. It would be better for all MSS terminals to measure using non-peak detectors, and for the Commission to specify in this proceeding the methods to measure out-of-band emissions levels. For example, accurate testing may not be achievable with spectrum analyzers. If a typical spectrum analyzer is used to measure a noise-like signal, correction factors must be applied to the measured levels in order for them to be valid. Proper measurements involve not only correction factors but also proper instrument set up. The -70 dBW/MHz limit appears predicated on measuring with an rms responding instrument, and the Commission should write the emissions levels in terms of average power levels to imply use of such equipment.⁶⁴

Narrowband Limit. With respect to the narrowband limit, Globalstar has no objection to inclusion of the limit in the rule for GMPCS METs. (*See Notice*, ¶¶ 81-82) However, the Commission must recognize that the narrowband limit has not been adopted by ETSI or the ITU, and METs certified to those standards will not necessarily be certified to the narrowband limit (although they may be able to meet it). If these terminals receive the GMPCS mark, then they should be permitted to roam into the United States. If they must be certified to the narrowband limit to enter this country for reasons that appear arbitrary, then the United States would be

(...continued)

there is no reason to withhold such protection at this point in time.

⁶⁴ Globalstar agrees with the Commission's proposal that all measurements be averaged over a 20 millisecond interval. (*Notice*, note 73)

erecting a barrier to the free roaming of GMPCS terminals and imposing a de facto requirement that they be certified to U.S. rules no matter what their licensing administration or whether they have received the ITU mark. Such action would be inconsistent with the principles of the GMPCS MOU, which the U.S. has signed, and could be interpreted by foreign manufacturers and service providers as a barrier to trade.

1605-1610 MHz Band. The Commission should adopt the ITU recommended limit for 1605-1610 MHz band. (*Notice*, ¶ 83) The United States has indicated unequivocally that it will not protect GNSS receivers operating above 1605 MHz. The ITU recommendation, ITU-R-M.1343, is therefore applicable.⁶⁵ Adopting this standard would make the protection requirements in the United States consistent with the ITU recommendation which is likely to be universally implemented.

Hardware/Software Configurations. Globalstar agrees that the Commission does not need to adopt acceptable specifications for hardware/software to meet the final limits. (*Notice*, ¶ 97) Commission licensees are obligated to meet the rule, and they must be given, and historically have been given, as much flexibility as possible to comply.

IV. THE PUBLIC INTEREST DOES NOT REQUIRE THE IMPOSITION OF EMERGENCY SERVICE OBLIGATIONS UPON SATELLITE SERVICE PROVIDERS

The Commission seeks comment on whether to require GMPCS terminals authorized for use in the United States to have position location capabilities.⁶⁶ Globalstar opposes *requiring*

⁶⁵ The ITU recommendation is consistent with ETSI's TBR-41.

⁶⁶ *Notice* at ¶ 98. The Globalstar system identifies the position of an authorized terminal within about 10 kilometers for purposes of routing and billing calls and for determining that the customer is located within a jurisdiction that has authorized Globalstar service.

satellite service providers to provide emergency services, including any requirement that GMPCS terminals have position location capabilities. AirTouch is committed to developing and providing emergency services with GMPCS terminals and has spent considerable effort and resources on developing such capabilities. If consumers want emergency services, the service providers must respond to meet that demand. Globalstar submits that there is no need for a regulatory mandate regarding emergency services and issues relating to MSS emergency service deployment make Commission action inappropriate and absolutely premature at this point in time.

In establishing the Big LEO services, the Commission refused to “require caller ID, standardized position information and automatic routing for distress and safety communications or disaster response communications.”⁶⁷ The Commission proposed to consider these issues in its rulemaking on enhanced 9-1-1 capability.⁶⁸ Subsequently, in its *Enhanced 9-1-1* proceeding, the Commission determined that, because MSS was still in the early development stages and facing more technological and international hurdles than terrestrial carriers, it would not impose any obligation to provide enhanced 9-1-1.⁶⁹

There is no basis in this proceeding for the Commission to revisit that determination. At its heart, the instant proceeding is about ITU marks and equipment certification; the proceeding does *not* address issues regarding spectrum utilization, network capacity, and licensee responsibility that must be analyzed in considering whether to require satellite service providers to offer

⁶⁷ *Big LEO Order*, 9 FCC Rcd. at 6012-13 ¶ 199.

⁶⁸ *Id.*

⁶⁹ *Revision of the Commission's Rules to Ensure Compatibility With Enhanced 911 Emergency Calling System*, 11 FCC Rcd 18676, 18718 ¶83 (1996) (“*Enhanced 911 Order*”).

emergency services. Such issues are more appropriately resolved in a separate proceeding where the full range of issues can be addressed.

While the Commission has analyzed the implications of requiring service providers to provide emergency services in the context of terrestrial cellular and PCS networks, that analysis has no relevance to MSS networks and therefore no MSS-specific analysis has occurred. Deploying emergency services on MSS networks is much more complex than on cellular or PCS networks. Fundamentally, MSS' status as an international, rather than a regional or local service, creates significant technical and administrative problems that do not arise for terrestrial cellular and PCS networks.

Unlike terrestrial carriers that provide coverage to defined geographic areas with designated public safety answering points ("PSAPs"), MSS service coverage will be ubiquitous across the U.S., Canada, and Mexico. Consequently, the challenge for MSS will be to locate users with sufficient accuracy, determine appropriate call routing and information delivery, and determine the appropriate transport mechanism for connecting to *all* of the approximately 6,200 PSAPs in the United States from only a limited number of gateways (end offices). Furthermore, MSS will provide coverage in areas where 9-1-1 service may not exist, insofar as 9-1-1 services are not ubiquitous throughout the Nation.

Moreover, MSS faces the challenge of interconnecting gateways to PSAPs without an established standard for interconnection for voice and data signaling, as well as questions regarding liability associated with providing emergency services, and the cost recovery methodology for furnishing enhanced 9-1-1 services. Finally, providing emergency services will not only require reengineering of the GMPCS terminals and software changes at the gateway, but

also solving significant capacity and reliability issues associated with providing enhanced 9-1-1 service on MSS networks.

Globalstar submits, therefore, that the Commission should not impose requirements for providing emergency services on MSS networks. Instead, the Commission should leave the service providers, gateway operators, and satellite operators with the flexibility to develop the most efficient mechanism for deploying emergency services to consumers. Globalstar is pursuing these efforts and sees no reason why carriers will unduly delay deployment of these important services. As technical and other hurdles are overcome, service will be provided.

CONCLUSION

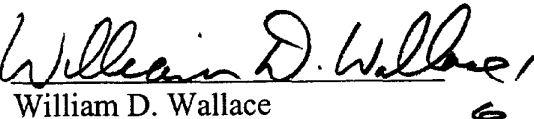
For the foregoing reasons, Globalstar urges the Commission to streamline its proposed licensing and certification procedures by eliminating different regulation for various artificial categories of GMPCS terminals, deferring technical review of GMPCS terminals to the certification process, and permitting terminals to be certified without an associated blanket license. Additionally, the Commission should adopt the phased out-of-band emission limits proposed by

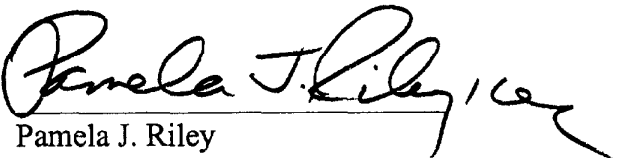
NTIA for GMPCS terminals. Finally, the Commission should not impose emergency service requirements upon MSS service providers.

Respectfully submitted,

**GLOBALSTAR, L.P.,
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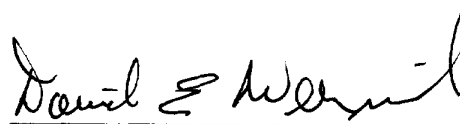
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ENGINEERING CERTIFICATE

I hereby certify under penalty of perjury that I am the technically qualified person responsible for the engineering information in the foregoing Comments, that I have reviewed the technical information in the foregoing Comments, and that it is complete and accurate to the best of my knowledge and belief.

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